[Proposed Legislation]

OPTION 5: Physical Separation of Smokers and Nonsmokers Using Dedicated Smoking Lounges

A. Recognizing the interests of both smokers and nonsmokers, smoking tobacco will be restricted in indoor spaces with dedicated smoking lounges as follows:

1. In buildings with traditional heating and ventilating equipment, smoking areas shall be equipped with:

   a. separate make-up air-conditioning units which shall provide ASHRAE's suggested ventilation rate of 60 cfm/person for smoking lounges; or

   b. ventilation exhausted directly to the exterior of the building. Adjacent rooms shall not be fitted with exhaust capabilities comparable to the smoking lounge in order to create a transfer of air into the smoking lounge from adjacent areas. Energy efficiency may be improved by use of:

      (1) energy recovery units or

      (2) no-recirculation technology/cold air distribution systems.

2. Smoking areas may be served by displacement or "plug flow" ventilation to sweep airborne substances toward an exhaust.

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III. DEDICATED SMOKING LOUNGE OPTION: PHYSICAL SEPARATION OF SMOKERS AND NONSMOKERS WITH AN ASHRAE 62-1989 DESIGN OPTION

A. General

Proper design and operation of ventilation systems, including provisions for air flow from nonsmoking to smoking areas, can obviate the need for physical separation between smoking and nonsmoking areas. Nevertheless, some employers have deemed it useful to physically separate smokers and nonsmokers. The clustering of smokers in one confined space may place an unnecessary demand upon the existing ventilation system. Thus, it may be desirable to provide dedicated smoking lounges.[15]

Dedicated smoking lounges can be set up in most buildings served with traditional heating and ventilating equipment. Separate make-up air-conditioning units can be supplied to these areas using suggested ventilation rate of 60 cfm/person for smoking lounges set forth in ASHRAE Standard 62-1989. To preclude the "migration" of smoke from the lounge back into the central ventilation system, ASHRAE notes the usefulness of local mechanical exhaust and indicates that "exhaust with no recirculation is recommended." Naturally, the installation of make-up air-

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15. Smoking lounges are discussed from an engineering perspective in Appendix 5 of the Appendix Volume.

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conditioning systems and the retrofitting of exhaust systems to such areas may involve some additional costs. However, many employers and property owners find expenditures for such options to be worthwhile. They can, for sometimes modest costs, offer this added amenity to their indoor spaces.

Other smoking lounge designs may incorporate energy recovery units,[16] cold air distribution systems[17] or displacement ventilation.[18]

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16. Energy Recovery Unit Design Option. Retrofit and operation costs for establishing and operating a separate smoking lounge may be objectionable to the owner/operator of a building. However, such increased costs may be minimized with the use of Energy Recovery Units (ERUs). In recent years, the efficiency of ERUs has improved dramatically and costs have dropped due to mass production. The principal of the Energy Recovery Unit is straightforward: the air exhausted from the smoking lounge is passed across a heat recovery wheel which transfers heat from the room to the wheel. The wheel then rotates from the exhaust air stream to the incoming supply air stream. Thus, on cold days, the incoming air is heated and on hot days, it is cooled. With energy recovery efficiencies of between 70 to 80 percent, such systems can substantially reduce the operating costs of ventilation in a designated smoking area.

17. Use of No-Recirculation Technology/Cold Air Distribution Systems. Although applicable to all buildings whether or not smoking is allowed, the so-called "cold air distribution system" technology is directly applicable to the smoking lounge situation. These systems make use of the "enthalpy" or heat-transference wheel referred to above. The systems also offer "ventilation on demand" with no system-wide recirculation. When properly designed, installed and operated, the cold air distribution system permits delivery of ventilation air at ASHRAE specified rates and at energy costs that are far below those of traditional HVAC systems.

18. Displacement Ventilation Option. Displacement or "plug flow" ventilation occurs when the ventilation air flows past an airborne substance and sweeps the substance toward an exhaust. In a smoking room, one effective route is to channel all

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B. [Proposed Legislation]. OPTION: Physical Separation of Smokers and Nonsmokers Using Dedicated ASHRAE Smoking Lounges

1. Recognizing the interests of both smokers and nonsmokers, smoking will be permitted in [indoor workplaces] [public places] [government buildings] in dedicated smoking lounges characterized as follows:

a. In buildings with traditional heating and ventilation (HVAC) equipment, dedicated smoking lounges shall be serviced with:

(1) sufficient HVAC capacity to provide transfer air at ASHRAE's suggested ventilation rate of 60 cfm/person for smoking lounges as outlined in the then-

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18.(...continued)
supply air through the floor and permit it to move vertically through the room exhausting at ceiling height. This means that all substances present in the indoor air, such as dusts, tobacco smoke, odors, microbes, exhaled breath, etc. will rise vertically above the room occupants and be removed into the exhaust located at the ceiling. Since most emissions of substances from human activities are "warm" relative to the surrounding air, there is a natural tendency for them to move upward on thermal currents. The upward flow of displacement ventilation facilitates this process. The concept of displacement ventilation has been actively pursued by the Scandinavians and Germans.

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existing version of ASHRAE Standard 62-1989; and

(2) Consistent with the existing HVAC configuration, ventilation may be exhausted directly from the dedicated smoking lounge to the exterior of the building. In such cases, adjacent rooms shall not be fitted with exhaust capabilities comparable to the smoking lounge in order to create a transfer of air into the smoking lounge from adjacent areas.

(3) Energy efficiency may be improved by use of energy recovery units.

b. In buildings with other forms of ventilation, reasonable steps shall be taken to meet the objectives outlined in subparagraph (a) above.

C. Discussion

In addition to the discussion of smoking lounges found in Appendix 5 of the Appendix Volume, a discussion of the separation

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of smokers and nonsmokers is found in Appendix 4 of the Appendix Volume and Section IV of this document.

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